



# Digital Transformation of Agricultural Marketing: A Decade Of E-NAM Trade Performance in Telangana

\*Anthati Upender, Research Scholar, Department of Commerce

Mahatma Gandhi University, Nalgonda, Telangana, India

DOI: <https://doi.org/10.56975/ijrar.v13i1.329993>

## ABSTRACT

National Agriculture Market (e-NAM) is a pan-Indian electronic trading platform that unifies Agricultural Produce Market Committees (APMCs) to create a single national market for agricultural commodities, digital transformation has had a major impact on agricultural marketing in India. The current study uses mandi-wise secondary data from official e-NAM reports to assess Telangana's e-NAM performance across a ten-year period, from 2016 to 2026. Key indicators including arrived lots, arrived quantity, traded quantity, and traded value across many APMCs integrated with the platform are the focus of the investigation. The results show a high degree of trading efficiency on the digital platform, with about 9.28 million lots of agricultural produce arriving in Telangana mandis and almost 7.89 million lots being effectively exchanged. Nearly 79 million units were traded, with an estimated transaction value of nearly ₹3,00,000 crore during the study period. Due to increased commodity arrivals and improved market infrastructure, major agricultural markets including Nizamabad, Suryapet, Khammam, Hyderabad, and Kesamudram became important trading hubs. According to the study's findings, the e-NAM platform has enhanced price discovery, market integration, and transparency in agricultural marketing. Nonetheless, there are also regional differences in Mandis' usage of modern technology. To increase inclusive participation in digital agricultural markets, the study suggests bolstering digital infrastructure, raising farmer knowledge, and increasing e-NAM integration.

**Keywords:** e-NAM, APMC, digital trade, market integration, agricultural marketing, and digital transformation

## 1. INTRODUCTION

India's economy depends heavily on agriculture since it creates jobs, supports rural livelihoods, and ensures the country's food security. In India, a sizable section of the population makes their living from agriculture and associated pursuits. Despite its significance, India's agricultural marketing system has historically encountered a few structural issues, including fragmented markets, opaque pricing discovery, poor market infrastructure, and the predominance of intermediaries in Agricultural Produce Market Committees (APMCs). These problems frequently restrict farmers' access to markets that are competitive, which lowers agricultural producers' income realization. Over the past few decades, the Indian government has implemented a few marketing reforms to address these issues and boost the effectiveness of agricultural markets. The National Agriculture Market (e-NAM), which was launched in 2016, is one of the biggest steps in this approach. The goal of the e-NAM platform, a pan-Indian electronic trading system, is to provide a single digital platform that unifies APMC marketplaces throughout the nation. By enabling online trading of agricultural commodities and promoting real-time price discovery, e-NAM's main goal is to establish a transparent and effective agricultural marketing system.

Through an electronic auction system, the e-NAM platform links farmers, merchants, purchasers, and commission agents. The platform enhances market access for farmers and encourages more competition among buyers by combining several mandis into a single digital network. Additionally, the system offers features including online payment methods, quality assaying, electronic bidding, and real-time market data that help lower transaction costs and information asymmetry in agricultural markets. Therefore, e-NAM is seen as a significant milestone in the digital transformation of Indian agricultural marketing. The efficiency and openness of agricultural supply chains have been enhanced by digital technologies in recent years. Digital platforms that link producers with markets directly have been made possible by information and communication technology (ICT). This has improved market integration and decreased inefficiencies in the conventional marketing system. In addition to improving price discovery transparency, digital agricultural markets like e-NAM make it easier for agricultural commodities to travel between different areas, which helps to create a more cohesive national market.

Since its launch, Telangana, a state with a significant agricultural base, has aggressively embraced the e-NAM concept. Farmers and merchants can now engage in digital trading activities thanks to the integration of certain APMC mandis in the state with the e-NAM platform. Telangana's adoption of e-NAM has improved agricultural trade efficiency, increased market options for farmers, and improved market transaction transparency. The platform has made it easier for numerous mandis in the state to trade substantial amounts of agricultural commodities during the last ten years. The first ten years of e-NAM deployment in Telangana, from 2016 to 2026, offer a crucial chance to assess the effectiveness of the digital agricultural marketing system. Researchers can examine patterns in arrivals, traded quantities, and traded prices across several APMC marketplaces because of the availability of mandi-wise trading data. This kind of analysis aids in determining how much digital platforms have improved market integration and agricultural marketing efficiency.

In this regard, the current study, "Digital Transformation of Agricultural Marketing: A Decade of e-NAM Trade Performance in Telangana (2016–2026)," uses mandi-wise trade data to analyze the e-NAM platform's performance in Telangana. Analyzing changes in agricultural arrivals, traded quantities, and trade values across different mandis integrated with the platform is the main goal of the study. The report offers insights into how technology is changing agricultural marketing systems and fostering effective market integration by assessing the effectiveness of digital agricultural marketplaces over a ten-year period.

## 2. Review of Literature

In recent years, researchers and politicians have focused a lot of attention on agricultural marketing reforms and the use of digital technologies. Numerous studies have looked at how digital platforms, market integration, and regulatory changes might enhance India's agricultural marketing systems. Chand (2016) underlined the necessity of integrating India's fragmented agricultural markets and stressed the significance of agricultural marketing reforms. According to the report, electronic platforms like the National Agriculture Market (e-NAM) can enhance price discovery and transparency. According to Acharya and Agarwal (2019), developing market ties between producers and customers and increasing farmers' income depends on effective agricultural marketing systems. The effect of electronic trading platforms on agricultural markets was examined by Aggarwal, Jain, and Narayanan (2019).

According to their research, digital platforms facilitate improved market integration and lessen pricing disparities between markets. The use of digital technologies in agricultural marketing was examined by Kumar and Sharma (2020). They came to the conclusion that information and communication technology (ICT) lowers transaction costs in agricultural trade and increases supply chain efficiency. According to Mittal's (2020) analysis of the function of digital platforms in bolstering agricultural marketing systems, farmers' decision-making and market knowledge are enhanced by digital technology.

Digital trading platforms enhance price discovery and boost trade volumes in agricultural markets, according to Birthal, Joshi, and Gulati's (2021) analysis of agricultural marketing changes in India. Telangana has made notable strides in incorporating APMC markets into digital trading systems, according to Reddy and Prasad's (2022) analysis on the adoption of the e-NAM platform in southern states. Digital agriculture platforms improve supply chain coordination, market transparency, and trading efficiency, according to Patel and Singh (2023). NITI Aayog (2018) highlighted the need of agricultural marketing reforms and suggested that digital agricultural markets be expanded throughout Indian states.

Government of India (2016) introduced the e-NAM platform as a major initiative to create a unified national agricultural market and improve the efficiency of agricultural marketing systems. National Informatics Centre (2024) claimed that the e-NAM platform has greatly improved digital agricultural transactions across numerous states, including Telangana. FAO (2017) recognized the relevance of digital technology in agriculture and noted that digital platforms promote market access and information sharing among farmers. In general, earlier research shows that digital systems like e-NAM enhance market integration, trade efficiency, and transparency in agricultural markets. However, only a small amount of research has looked at mandi-wise performance at the state level, especially in Telangana, while most studies concentrate on national-level analysis. To close this research gap, the current paper examines Telangana's mandis' e-NAM trade performance from 2016 to 2026.

### 3. RESEARCH GAP

Most of the earlier research focuses on e-NAM performance at the national level. There hasn't been much empirical study done on state-level mandi-wise performance, especially in Telangana. By examining mandi-wise e-NAM trade data in Telangana from 2016 to 2026, this study closes this gap.

### 4. OBJECTIVES OF THE STUDY

1. To use e-NAM to investigate the role of digital transformation in agricultural marketing.
2. To examine Telangana's agricultural commodities' mandi-wise trade performance.
3. To assess patterns in traded quantities, exchange values, and arrivals.
4. To recommend legislative actions to bolster online agriculture markets.

### 5. RESEARCH METHODOLOGY

The methodical process used to gather, examine, and interpret data to accomplish the study's goals is referred to as research methodology. Through the performance of Telangana's National Agriculture Market (e-NAM) during a ten-year period, the current study investigates the digital revolution of agricultural marketing. The study's methodology is explained below.

#### 5.1. Design of Research

A descriptive and analytical research design is used in the study. The setup and operation of the e-NAM platform in agricultural markets are explained using the descriptive technique, and Telangana's mandi-wise trade performance is assessed using the analytical approach. Understanding the trends and patterns of agricultural trade carried out via the digital marketing platform is made easier by this design.

#### 5.2. Source of Data

The National Agriculture Market's (e-NAM) official records provided secondary data for the study. The information was taken from Telangana's Mandi Wise Agreement Type Summary Report, which covered the dates of April 14, 2016, to February 26, 2026.

The report offers comprehensive details on the trade transactions carried out by various Agricultural Produce Market Committees (APMCs) in Telangana using the e-NAM platform.

#### 5.3. Period of the study

The analysis examines the first ten years of the e-NAM digital trading platform's implementation in India, from 2016 to 2026. During this time, the digital marketing system can be used to evaluate long-term trends in agricultural commerce.

#### 5.4. Area of Study

The study's geographic scope is restricted to the state of Telangana. The analysis focuses on different APMC mandis in districts like Nizamabad, Suryapet, Khammam, Hyderabad, Kesamudram, and others that are integrated with the e-NAM platform.

#### 5.5. Variables of the Study

The following factors form the basis of the e-NAM trade performance analysis:

The quantity of goods delivered to the mandi for sale is known as the "arrived lots."

**Arrived Quantity:** The total amount of agricultural products that are brought to market.

**Traded Lots:** The quantity of lots that were successfully exchanged using the e-NAM platform.

**Traded Quantity:** The amount of produce sold via online transactions.

**Traded Value:** The total amount of money made from trading agricultural products.

These metrics aid in assessing the scope, effectiveness, and financial results of digital agriculture marketing.

## 5.6. Tools and Techniques of Analysis

Simple statistical and descriptive methods have been used to assess the gathered data, including:

Tabular analysis

Comparative evaluation

Analysis of percentages

Analysis of trends

These tools aid in comprehending mandi-wise trade performance and pointing out differences in the e-NAM platform's uptake and efficacy among various marketplaces.

## 5.7. Limitations of the study

There are some restrictions on the study:

1. Only secondary data from official reports is used in the study.
2. The analysis excludes farmer-level survey data and is restricted to trade performance metrics.
3. Because the study only looked at Telangana, its conclusions might not apply to other states.

Notwithstanding these drawbacks, the data offers insightful information about the e-NAM platform's digital transformation of agricultural marketing.

## 6. Data Analysis and Interpretation

The trade performance of Telangana's Agricultural Produce Market Committees (APMCs) connected to the e-NAM platform from 2016 to 2026 is examined in this section. To determine the scope of digital agricultural marketing in the state, the analysis concentrates on metrics like arriving at lots, arriving at quantity, traded quantity, and traded value. The information was obtained from Telangana's Mandi Wise Agreement Type Summary Report.

### 6.1. Telangana's e-NAM's overall trade performance

There was a considerable amount of trade activity throughout the study period, according to the aggregate data of all mandis linked with e-NAM in Telangana Trade Value. View the table below:

<b>Indicator</b>	<b>Value</b>
Total Arrived Lots	9,280,000
Total Arrived Quantity	88,383,000
Total Traded Lots	7,892,500
Total Traded Quantity	79,605,000
Total Traded Value	₹301,160,349,000

Source: e-NAM Mandi Wise Agreement Type Summary Report (2016-2026)

## Interpretation

According to the data, around 85% of arrived lots were successfully traded, demonstrating Telangana's robust market liquidity and effective digital trading operations. The large, traded value shows how important internet agricultural markets are becoming financially.

### 6.2. Major High-Performing e-NAM APMC Mandis in Telangana

In the given below table showing major high-performing e-Nam APMC Mandis in Telangana.

Rank	APMC Market	District	Trade Value (in Rs)
1	Nizamabad	Nizamabad	53,865,012,506
2	Suryapet	Suryapet	24,384,199,775
3	Khammam	Khammam	24,303,883,856
4	Hyderabad Market	Hyderabad	24,253,544,765
5	Kesamudram	Mahabubabad	16,685,413,243

**Source:** e-NAM Mandi Wise Agreement Type Summary Report (2016-2026)

## Interpretation

Nizamabad APMC achieved the greatest transaction value among Telangana's e-NAM integrated markets, according to the above figure, demonstrating its robust agricultural output base and sophisticated market infrastructure. Due to increased agricultural commodity arrivals and strong trader participation, Suryapet and Khammam markets also exhibit substantial trading activity. Because of its connectivity and market need, Hyderabad Market serves as a significant commercial hub. In the Mahabubabad district, Kesamudram APMC also became a significant trading hub with a sizable number of digital transactions.

### 6.3. Lower-Performing e-NAM APMC Mandis in Telangana

Telangana's lower-performing e-NAM APMC Mandis is displayed in the table below.

APMC Market	District	Trade Value (in Rs)
ENKOOOR	Khammam	39,09,24,000
JOGIPET	Sangareddy	14,44,43,821
ATMAKUR	Wanaparthy	13,93,60,767
SHANKARAPALLY	Ranga Reddy	13,10,51,528
VATPALLY	Sangareddy	1,37,59,384

**Source:** e-NAM Mandi Wise Agreement Type Summary Report (2016-2026)

## Interpretation

Under e-NAM, these mandis function as lower-performing APMC mandis because of: Reduced agricultural output due to geographic circumstances, Major commodities like cotton, castor seed, onions, red, green, and black grams, among others, are exchanged in these markets. Both fertile land resources and water resources may be impacted in these areas.

## 7. Key Results

1. Telangana Mandis received more than 9.28 million tons of agricultural produce.
2. Through e-NAM, about 7.89 million lots were successfully exchanged.
3. More than 79 million units were traded overall.
4. The value of trade surpassed ₹3,00,000 crore.
5. Kesamudram, Hyderabad, Suryapet, Nizamabad, and Khammam became important e-Nam APMCs markets.

## 8. Conclusion

Using mandi-wise secondary data, the study examined Telangana's National Agriculture Market's (e-NAM) performance from 2016 to 2026. The findings demonstrate that the state's agriculture marketing efficiency has increased because of digital transformation. The e-NAM platform's integration with APMC markets has strengthened the trading system, increased pricing transparency, and given farmers better access to markets. 7.89 million of the approximately 9.28 million lots that arrived during the study period were exchanged, representing an 85% trading efficiency. Over 79 million units were exchanged in total, with a trade value exceeding ₹3,00,000 crore.

The study looked at the performance of Telangana's National Agriculture Market (e-NAM) from 2016 to 2026 using mandi-wise secondary data. The results show that the state's digital transformation has improved farm marketing efficiency. Farmers now have better access to markets; the trading system is stronger, and pricing transparency has grown thanks to the e-NAM platform's interaction with APMC marketplaces. 7.89 million of the approximately 9.28 million lots that arrived during the study period were exchanged, representing an 85% trading efficiency. Over 79 million units were traded, totaling more than ₹3,00,000 crore.

## 9. Implications of the Study

The results of this study have significant ramifications for Telangana's digital market growth and agriculture marketing policies. The study shows how digital platforms like e-NAM greatly increase trading efficiency, price discovery, and market transparency. Digital agricultural markets can successfully integrate fragmented markets and improve farmer access to competitive buyers, as evidenced by Telangana Mandis high trading conversion rate.

To guarantee greater involvement in electronic agricultural markets, the findings further emphasize the necessity of bolstering digital infrastructure and increasing farmer ability. These results can be used by policymakers to create focused plans for enhancing the performance of underperforming mandis and extending digital agriculture marketing throughout rural areas.

## 10. Suggestions for Policy

The following policy recommendations are made considering the study's findings to improve e-NAM's performance and advance inclusive digital agricultural marketing in Telangana.

### 1. Fortifying Digital Infrastructure

To ensure that online trading systems run well, the government should improve digital infrastructure and internet connectivity in rural Mandis. Farmers' and traders' involvement in the e-NAM platform will increase with dependable digital infrastructure.

## **2. Developing Capabilities and Training Farmers**

Farmers should be educated about the advantages and workings of the e-NAM platform through training programs and awareness campaigns. Farmers who are more digitally literate will be more likely to participate in online agricultural marketplaces.

## **3. Market Infrastructure Development**

To facilitate effective digital trade and raise the caliber of agricultural produce, APMC mandis should be furnished with contemporary facilities such as warehouses, grading units, quality testing labs, and storage facilities.

## **4. Supporting Farmer Producer Organizations (FPOs)**

Promoting the establishment and involvement of Farmer Producer Organizations (FPOs) can strengthen the negotiating power of small and marginal farmers by enabling them to participate collectively in digital markets. Farmers should be educated about the advantages and workings of the e-NAM platform through training programs and awareness campaigns. Farmers who are more digitally literate will be more likely to participate in online agricultural marketplaces.

## **5. Enhancing Transportation and Logistics Facilities**

To promote market integration and enable the seamless flow of agricultural goods between mandis and between states, better logistics and transportation infrastructure should be built.

## **6. Increasing the Integration of e-NAM**

To increase the digital agricultural market network and give farmers more market access, more mandis in Telangana should be connected to the e-NAM platform.

## **7. Assistance with Lower-Performing Mandis**

Lower performing mandis including Enkooor, Jogipet, Atmakur, Shankarapally, and Vatpally should receive special policy attention through infrastructure improvements, increased trader involvement, and focused assistance initiatives.

## **11. Future Research Scope**

While the current study offers valuable insights into Telangana's e-NAM platform performance, additional research can be carried out in the following areas:

- Analysis of agricultural trade using e-NAM by commodity.
- Farmers' earnings are affected by digital agriculture marketing.
- Evaluation of e-NAM performance in various Indian states.
- Farmer Producer Organizations (FPOs) function in online agricultural marketplaces.
- Farmers use digital agricultural platforms.

## **12. References**

1. Chand, R. (2016). E-platform for the national agricultural market. *Economic and Political Weekly*, 51(28), 15–18.
2. Acharya, S. S., & Agarwal, N. L. (2019). *Agricultural Marketing in India* (6th ed.). Oxford & IBH Publishing.

3. Aggarwal, N., Jain, S., & Narayanan, S. (2019). Agricultural market reforms and the electronic national agriculture market (e-NAM) in India. *Economic and Political Weekly*, 54(51), 45–52.
4. Kumar, A., & Sharma, P. (2020). Digital transformation in agricultural marketing in India. *Indian Journal of Agricultural Economics*, 75(3), 355–368.
5. Mittal, S. (2020). Digital platforms in agricultural marketing: Opportunities and challenges. *Agricultural Economics Research Review*, 33(2), 145–156.
6. Birthal, P. S., Joshi, P. K., & Gulati, A. (2021). Market integration and agricultural trade reforms in India. *Agricultural Economics Research Review*, 34(1), 1–12.
7. Reddy, K., & Prasad, V. (2022). Adoption of electronic national agriculture market (e-NAM) in southern India. *International Journal of Agricultural Economics*, 7(2), 65–72.
8. Patel, D., & Singh, R. (2023). Digital platforms and agricultural market integration in India. *Journal of Agribusiness and Rural Development*, 67(1), 45–58.
9. NITI Aayog. (2018). Agricultural marketing and farmer-friendly reforms across Indian states. Government of India.
10. Government of India. (2016). Operational guidelines for the National Agriculture Market (e-NAM). Ministry of Agriculture and Farmers Welfare, New Delhi.
11. National Informatics Centre. (2024). National Agriculture Market (e-NAM) portal: Overview and performance report. Government of India.
12. Food and Agriculture Organization of the United Nations. (2017). The future of food and agriculture: Trends and challenges. FAO.
13. Small Farmers Agribusiness Consortium. (2026). e-NAM mandi-wise agreement type summary report: Telangana. National Agriculture Market (e-NAM) Portal, Ministry of Agriculture and Farmers Welfare, Government of India. <https://www.enam.gov.in>